

VILLAGE PLAZA THEATERS
TRAFFIC IMPACT STUDY AMENDMENT
EXECUTIVE SUMMARY

THE TOWN OF CHAPEL HILL, NORTH CAROLINA



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EXECUTIVE SUMMARY

Project Overview

In February 2002, a traffic impact analysis (TIA) was conducted by RS&H Architects-Engineers-Planners Inc. for the redevelopment of the Village Plaza Theaters in the Village Plaza Shopping Center. The proposed cinema was to be expanded from 5 to 10 screens on the original theater location along S. Elliott Road between Franklin Street and US 15-501 in Chapel Hill, NC. **Figure ES-1** shows the general site location of the theater development, which was demolished. The study conducted by RS&H analyzed the theater's effects on traffic at the intersections of Franklin Street & Elliott Road, US 15-501 Bypass & Elliott Road, and Elliott Road & two shopping center driveways (adjacent to the development).

The 2002 study recommended that one of the site access driveways be widened for two exiting turning lanes. However, this driveway, known as Driveway "D", is not entirely located on the Applicant's property. Pursuant to the inability in reaching an agreement with the adjacent property owner to make off-site improvements at Driveway "D", the project has not been completed. Subsequent to this inability to achieve agreement, Eastern Federal Corporation (owner of the cinema site) sought to amend the site's Special Use Permit to have this driveway widening removed as a requirement of the Permit. Part of the application to amend the permit is this traffic study by HNTB, which reanalyzes the proposed development and broadens the scope to include six access driveways along Elliott Road. This report will analyze the proposed theater's affects on all six existing driveways for the full build-out scenario in 2007, the no-build scenario for 2007, as well as 2004 existing year traffic conditions.

The existing Village Plaza shopping center has direct access to Elliott Road via three driveways along its east/north frontage. There are three additional driveways studied that provide internal connections to the cinemas and shopping center. Elliott Road connects to both Franklin Street and US 15-501, both serving as major access points to the Town of Chapel Hill and Triangle Region. **Figure ES-2** displays the preliminary site plan of the proposed Village Plaza Theater site and nearby roadways.

Existing Conditions

Study Area

The preliminary project site plan provided for this analysis is shown in **Figure ES-2**. The site is located in the existing Village Plaza Shopping Center and is currently vacant. Site traffic will use one of six driveways to access Elliott Road which connects to both US 15-501 and Franklin Street; two regional arterial facilities that will provide connectivity for site traffic with other areas of Chapel Hill and the Triangle.



As previously mentioned, this report analyzes and presents the transportation impacts that the Village Plaza Theater site will have on the following intersections in the project study area (from southeast to northwest):

- Elliott Road and Driveway "A" – Across from Burger King
- Elliott Road and Driveway "B"
- Elliott Road and Driveway "C"
- Elliott Road and Driveway "D" – Red, Hot & Blue Restaurant frontage
- Elliott Road and Driveway "E" – Red, Hot & Blue Restaurant frontage
- Elliott Road and Driveway "F" – Whole Foods Supermarket frontage

It was determined in conversations with Town staff that no changes to the RS&H evaluation of the intersections of Franklin Street / Elliott Road and US 15-501 Bypass / Elliott Road are necessary for this analysis. Due to this fact, these intersections were not studied in this amendment. For the aforementioned analyses, please refer to the February 2002 document completed by RS&H. All of the analyzed intersections currently serve study area traffic. The six driveway intersections with Elliott Road are currently unsignalized with each experiencing the stop controlled condition. The study provided by RS&H examined only the affects of the produced traffic on Driveway "C" and Driveway "D." Upon redistributing the traffic, this amendment focuses on the affects on each Driveway, "A" through "F." Elliott Road, in the project study area, is a three lane roadway with left-turn bays striped at each Village Plaza driveway. Elliott Road will provide theater patrons with access to Franklin Street to the west and US 15-501 to the east.

Site Traffic Generation

With the addition of new peak hour trips during the Friday and Saturday evening peak hours, there are potential site traffic impacts to the study area intersections. **Table ES-1**, on the next page shows the site trip generation details, with generation rates taken from the *ITE Trip Generation Manual, Volume 7*.

Background Traffic

Background traffic methodologies and trip generation/distribution/assignment were taken directly from the original Village Plaza Theaters TIA. The three background traffic generators in the 2002 study are listed below:

- Franklin Grove Townhomes
- Chapel Hill Centre II
- University Mall Expansion

Traffic volume data from the 2002 study was analyzed to identify study area intersections containing background traffic. In general, few background trips are made on Elliott Road and none will impact the six site driveway entrances.



Table ES-1
Weekend Vehicle Trip Generation Summary
Proposed Village Plaza Theater

ITE Land Use Codes 444 (Movie Theater with Matinee) & 445 (Multi-Plex)

Friday Evening Peak Trip Summary

Scenario	ITE Code	Land Use Name	Total Trips	IN	OUT	Trip IN	Trip OUT
2007 Build out	445	Multi-Plex	576	56	44	323	253
	444	Movie Theater w/ Matinee	851	56	44	477	374
	Average	New Village Theaters	714	56	44	400	314

Saturday Evening Peak Trip Summary

Scenario	ITE Code	Land Use Name	Total Trips	IN	OUT	Trip IN	Trip OUT
2007 Build out	445	Multi-Plex	588	52	48	306	282
	444	Movie Theater w/ Matinee	971	56	44	544	427
	Average	New Village Theaters	780	56	44	437	343

Impact Analysis

Peak Hour Intersection Level of Service

Even with the addition of Friday and Saturday evening peak hour site-generated trips to the projected 2007 background traffic volumes, no study area intersections will experience overall deficient traffic operations. A summary of the traffic operations for each intersection, related to vehicular delays (intersection average as a whole if signalized, critical movement if stop-controlled) and the corresponding Level-of-Service (LOS) is shown in **Table ES-2** on the next page.



Table ES-2 LOS and Delay Summary

Village Plaza Theaters									
Intersections	Time Period	2004 Existing		2007 No-Build		2007 Build		2007 Mitigated	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Elliott Road and Driveway "A"	FRI	17.3	C	18.0	C	28.7	D	N/A	N/A
	SAT	15.3	C	15.1	C	22.5	C	N/A	N/A
Elliott Road and Driveway "B"	FRI	13.2	B	13.6	B	19.2	C	N/A	N/A
	SAT	12.6	B	13.1	B	19.2	C	N/A	N/A
Elliott Road and Driveway "C"	FRI	11.3	B	11.6	B	36.1	E	N/A	N/A
	SAT	10.7	B	10.9	B	33.9	D	N/A	N/A
Elliott Road and Driveway "D"	FRI	12.9	B	13.3	B	16.1	C	N/A	N/A
	SAT	12.1	B	12.4	B	15.0	B	N/A	N/A
Elliott Road and Driveway "E"	FRI	12.9	B	12.5	B	16.5	C	N/A	N/A
	SAT	12.4	B	13.4	B	16.8	C	N/A	N/A
Elliott Road and Driveway "F"	FRI	16.8	C	17.0	C	23.6	C	N/A	N/A
	SAT	16.3	C	16.7	C	25.0	C	N/A	N/A

N/A – Not Applicable or No Improvements Necessary

Access Analysis

Vehicular site access is to be accommodated via the six potential site driveways connecting to Elliott Road. The three on-site driveways ("A", "B", and "C") should ideally handle all of the site-related traffic, but with the availability and connectivity of internal roadways from "D", "E", and "F", there is a strong possibility that some theater-related traffic will use those driveways for access to parking.

Driveway throat lengths as shown on the proposed site redevelopment plans are adequate for projected 2007 with site traffic conditions. Estimated queues should rarely exceed the 50 foot throat length for Driveways "A" and "B". Driveway "C" has an approximate 25 foot driveway throat length, with separate left and right-turning vehicle lanes. This throat length is too short for adequate and safe operations, even with estimated queue lengths of approximately 2 vehicles for exiting left-turns. During peak turnover periods within the peak hour itself, traffic may back up beyond predicted hourly queue length maximums. A 50 foot minimum driveway throat length would greatly add to safe vehicular circulation to and from Elliott Road. This additional requirement would



force a redesign of circulation lanes within the parking lot, due to the fact that the current site plans show travel lanes meeting at the end of the 25 foot throat. The 2003 NCDOT Policy on Street and Driveway Access to North Carolina Highways recommends a 100 foot minimum throat length (similar to Driveway "F") for driveways accessing arterial roadways.

Internal circulation and access to other commercial development within the Village Plaza Shopping Center area developed by Eastern Federal Corporation and Mark Properties is well designed on the site plan. Traffic can use internal driveway connections to access all other parcels from the front of the theater and from the back of the theater. Also, cross access is maintained with the Red, Hot and Blue, and Whole Foods parking lots. As a stipulation in the original 2003 Special Use Permit for the Village Plaza Theaters, the developer is to provide sentinel personnel on its property to ensure that cross parking is not occurring by theater patrons in the Red, Hot and Blue and Whole Foods parking areas.

Access for pedestrians is currently acceptable. As previously discussed, there are ample area sidewalks and good sidewalk connectivity, at least in the local study area. Bicycle access is also adequate to and from the site, although no specific bicycle amenities are provided on Elliott Road. The Lower Booker Creek Greenway provides some additional external connectivity for non-motorized transportation.

Special Analysis/Issues

The key issue in the need for a reinvestigation of traffic impacts from this site is the more thorough analysis of driveway access and improvements to on-site parking. The original Village Plaza Theaters study conducted by RS&H Engineers made a recommendation of improving both driveways in that study ("C" and "D") to have separated left and right turning lanes exiting the site. This recommendation was not directly due to congested or failing traffic conditions at these site driveways with the addition of theater traffic. The current site plans show Driveway "C", the on-site driveway, being improved for separate exit turning lanes and a single entrance lane. Driveway "D", an off-site driveway, shows no design improvements over existing conditions. The previous trip distribution estimates and corresponding capacity analysis showed that Driveway "D" would not need separate left and right-turn exit lanes during the peak hours under study, but that the need for separate exit turning lanes from Driveway "D" was a general recommendation to improve conditions at this driveway, though those conditions were not considered to require mitigation by Town of Chapel Hill standards.

Improvements to on-site parking will likely play a significant role into where movie theater-related traffic chooses to access the proposed site. A quantitative investigation into proposed parking shows that there will be approximately 240 parking spaces proximally located adjacent to the theater. Approximately 52 spaces will be created on the north side of the theater, 67 spaces between driveways "D" and "C", and 120 spaces located between driveways "C" and "B". Some non-theater related parking



currently uses some spaces in the area between entrances “C” and “B”, and will continue to do so in the future.

Beyond the proximal parking areas, there is secondary parking capacity available between driveways “A” and “B” – approximately 150 spaces and off site in the Red, Hot and Blue lot – 25 spaces and behind stores in the adjacent Whole Foods shopping center – 30+ spaces. Secondary parking capacity indicates that these stalls would likely not be considered optimal theater parking, but would be desirable parking spaces if optimal spaces were taken. Again, there is some existing parking demand during the peak hours under study at these locations. Proximity to the proposed theater entrance was considered the main criteria for parking space importance.

Additional parking space opportunities are located farther to the north in the Whole Foods lot and farther east of driveway “A” in the Village Plaza complex, but with the primary and secondary parking supply available, it is highly unlikely that these spots would be needed. Signage outside the Whole Foods lot indicates that this lot is exclusively for shoppers at the market and adjacent stores, and not for general area parking.

With this distribution of parking capacity, it is reasonable that most access will occur at Driveways “C” and “B”. To a lesser extent, some vehicles may attempt to access at Driveways “D” and “E”, but little immediate parking would be available in Red, Hot & Blue and traffic would have to negotiate through significant speed bumps on internal circulation roads in that area.

It is important to note that the focus of traffic impact studies under the Guidelines for Preparation of a Traffic Impact Study provided by the Town of Chapel Hill is on the analysis of transportation impacts on the adjacent and external transportation network surrounding a proposed development. While some account needs to be made for a development’s parking access and circulation, the scope of this Village Plaza Theater traffic impact study does not attempt a further, quantitative analysis of parking issues for the Village Plaza Theaters and its study area environs.



Mitigation Measures/Recommendations

A.) Planned Improvements

Neither the Town of Chapel Hill nor the North Carolina Department of Transportation are expected to make any significant planned improvement projects for study area facilities studied during this amendment. Page 32 of the February 2002 RS&H TIA mentions several planned improvements by the Town beyond the boundaries of this study area, but they are not expected to affect this study.

B.) Background Committed Improvements

No background improvements are committed by other area project developments.

C.) Applicant Committed Improvements

The only stipulation made in the original operations analysis as an "Applicant Committed Improvements" is the widening of Driveways "C" and "D". Based on a reanalysis of the site generated trips in the appropriate peak periods and a more accurate redistribution of site traffic among the six possible site driveways, there are no necessary improvements to be made beyond what are indicated on the site plan for driveway throat lengths and lane designation/stripping.

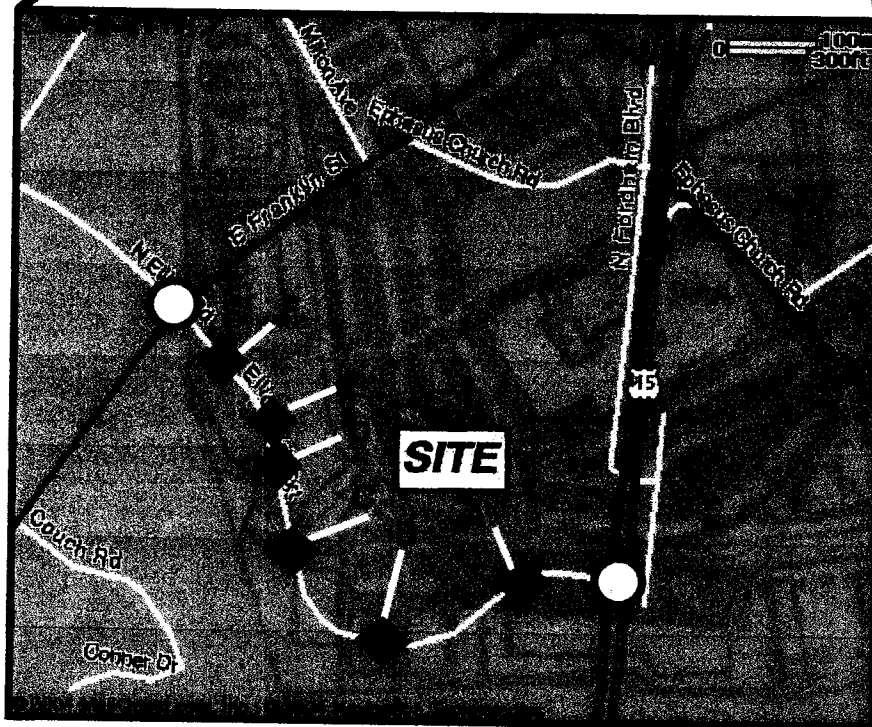
D.) Necessary Improvements




No additional external roadway improvements are necessary to due to the addition of ambient growth and/or site traffic. However, as described in the Access Analysis section, the throat length for Driveway "C" should be extended to at least 50 feet. This would impact the circulation plan for the parking lot on current plans. Care needs to be taken with streetscape improvements along Elliott Road to allow adequate sight distance from Driveways "B" and "C", as they both are located near a horizontal curve. Driveways "B" and "C" should also feature conspicuous signage indicating that they are the main entry points for the proposed Village Plaza Theaters.

As part of the original Special Use Permit for this site, the developer agreed to provide personnel to monitor parking operations and ensure, to the greatest extent possible, that theater-goers were parking in lots on the Village Plaza site owned by the developer, Eastern Federal and Mark Properties. This policy needs to be adhered to since the Red, Hot and Blue lot has a limited amount of parking capacity and the neighboring lot at Whole Foods is designated only for patrons of that shopping center.



Not to Scale



- Note:
-  = Site Driveways Included in Study
 -  = Other Driveways Included in Study
 -  = Other Intersections Studied Previously

Site Location Map

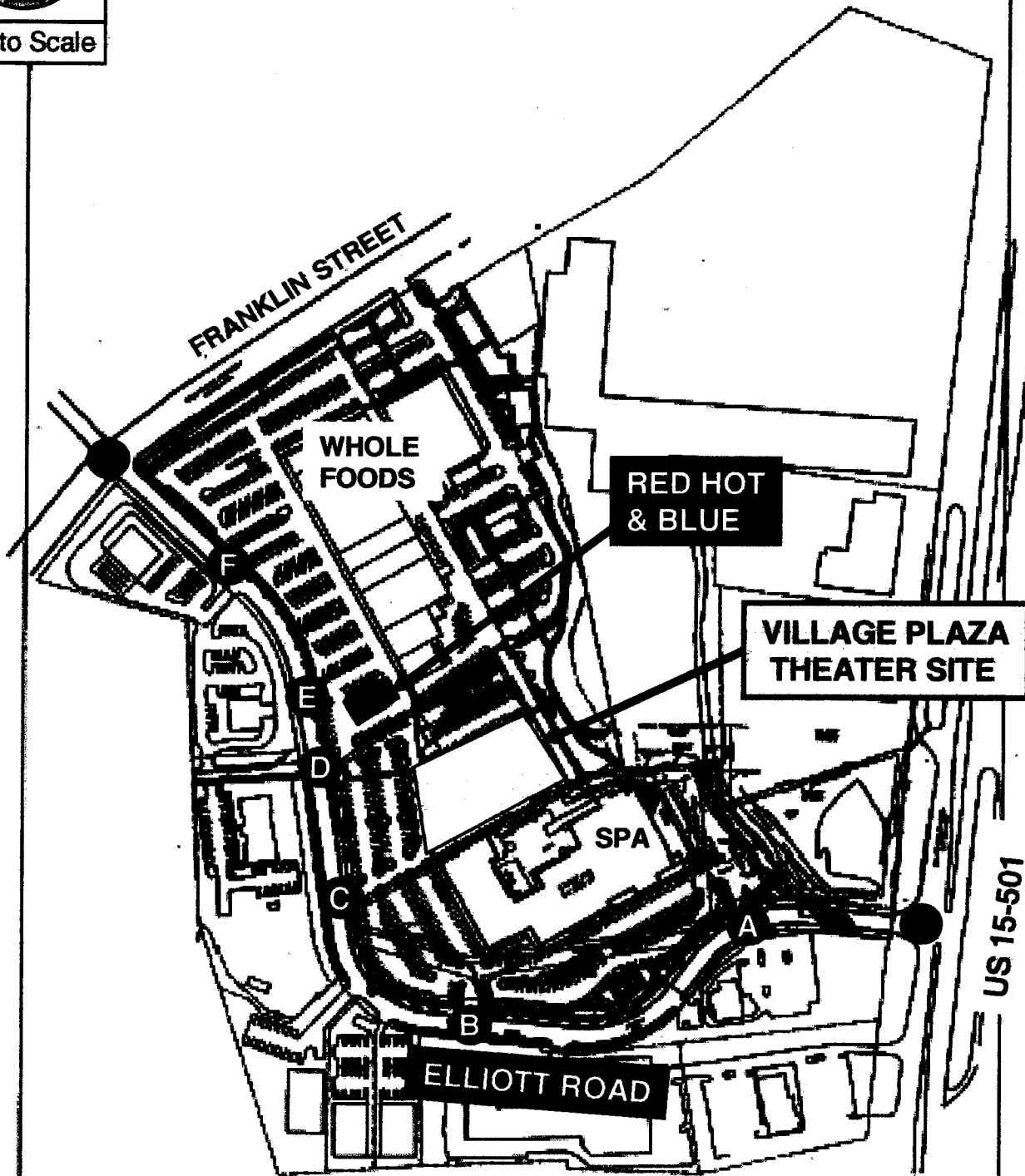
Figure ES-1

HNTB

**Village Plaza Theaters
Traffic Impact Study**



Not to Scale



- STUDY AREA INTERSECTION
- INTERSECTION STUDIED PREVIOUSLY

Figure ES-2



Village Plaza Theaters
Traffic Impact Study